

# **15.0**

## ***Integration***

In accordance with Army Regulation (AR) 200-3, this Integrated Natural Resources Management Plan (INRMP) has been reviewed for its consistency with other Fort Belvoir management plans. Section 9-1b of AR 200-3 outlines criteria that an INRMP must meet to be considered integrated. One of the criteria is that the INRMP be compatible with the installation's master plan, pest management plan, and master training schedule. This section of the INRMP evaluates these plans, as well as other installation plans and programs that do not directly address natural resources management, but could relate to natural resources and this INRMP. Plans and programs directly addressing natural resources management (e.g., Bald Eagle Management Plan, Watershed Management Plan, Bird Conservation Plan, etc.) are discussed in Sections 7 – 13. Fort Belvoir's military mission as it relates to natural resources is discussed in Section 3. The plans and programs examined in this section include:

- Real Property Master Plan, Long-Range Component
- Real Property Master Plan, Installation Design Guide
- Training schedule
- Integrated Cultural Resources Management Plan
- Real Property Maintenance Contract
- Integrated Pest Management Plan
- Pollution Prevention Plan
- Phase II stormwater program
- Stormwater Pollution Prevention Plan
- Master Spill Plan
- Petroleum storage tank compliance program
- Integrated Solid Waste Management Plan
- Solid Waste Landfill Postclosure Plans
- Solid waste management units program
- Environmental training program

Fort Belvoir Directorate of Installation Support (DIS) Environmental and Natural Resources Division (ENRD) personnel provide input to these plans and programs as they are written and

updated. Additionally, Fort Belvoir DIS staff attends weekly meetings where the activities, plans, and programs of each DIS division are discussed. Furthermore, ENRD attends the monthly Major Project Review meeting, which is held at the Command headquarters. This facilitates coordination of the DIS Natural Resources Branch (NRB) with Environmental Compliance Branch (ECB) and other installation entities on activities that may affect natural resources on post.

## **15.1 REAL PROPERTY MASTER PLAN LONG-RANGE COMPONENT AND REAL PROPERTY MASTER PLAN INSTALLATION DESIGN GUIDE**

The *Fort Belvoir Real Property Master Plan Long-Range Component* (Woolpert, 1993a) establishes the future direction for on-post development and includes means to ensure natural resources protection. The long-range component designates environmentally sensitive areas on post that are the least desirable for development (i.e., wetlands; floodplains; and areas with steep topography, poor soils, endangered species habitat, and cultural resources). It also encourages siting development in previously developed areas. The *Fort Belvoir Real Property Master Plan Installation Design Guide* (Woolpert, 1995) is a companion to the long-range component. The installation design guide provides comprehensive design guidelines for the development, redevelopment, and refurbishment of existing and future structures on Fort Belvoir including buildings, streetscapes, and improved grounds. The installation design guide also addresses management of the open space and landscapes connected to the built areas.

As part of the transportation management component of the master plan, Fort Belvoir is conducting a planning-level study to determine needed roadway and intersection improvement for projected growth at Fort Belvoir. NRB staff will review the results of the study to offer recommendations for meeting transportation needs while minimizing impacts on installation natural resources.

The master plan is currently being revised with a scheduled completion date in 2003. Installation design guide revisions are ongoing. NRB staff will work with installation master planners and designers to ensure that the revised master plan and design guide are prepared in accordance with the goals and objectives outlined in this INRMP. Specific items that should be revised in the *Fort Belvoir Real Property Master Plan, Long-Range Component* include the following:

- Adapting smart growth principles by directing development toward areas where natural resources would be least impacted (the current master plan directs development toward previously developed areas, but does not evaluate the suitability of previously undeveloped, non-sensitive areas for development)

Specific items that should be added to or updated in the *Fort Belvoir Real Property Master Plan – Installation Design Guide* include:

- Guidelines for landscaping and building design to reduce energy costs
- Recommendations for vegetation management in improved grounds and natural borders
- Guidelines for habitat restoration and environmentally beneficial landscaping

- Recommendations for using more pervious materials to enhance desirable tree growth, improve infiltration, and reduce non-point source pollution
- Systems for non-point source stormwater control (e.g., bioretention/filtration of stormwater, curb cuts, rain leader disconnects, and other low impact development techniques for stormwater management).
- Adding riparian forest buffers as environmentally sensitive areas and indicating the types of activities permitted within them
- Incorporating the list of recommended native plant species (Appendix M) into the installation design guide
- Revising the grading section to include land manipulation for stormwater runoff control. (This section currently describes the use of berms and plantings for visual screening only)
- Incorporating the current Fort Belvoir tree protection standards.

In addition to providing input in the revision of the master plan and installation design guide, Fort Belvoir plans to initiate a facilities siting/design review committee to include representatives from ENRD, Master Planning, and the Contract Management Division. The committee will develop and participate in a siting/design review process to ensure the consideration of all aspects of natural resources protection.

## **15.2 CULTURAL RESOURCES MANAGEMENT PLAN**

Fort Belvoir's Integrated Cultural Resources Management Plan (R. Christopher Goodwin & Associates, 2000 draft) facilitates installation compliance with cultural resource management laws and policies. Cultural resource management is integrated into the existing framework of Fort Belvoir's operations and mission in a manner consistent with current federal (principally the National Historic Preservation Act of 1966, as amended), Department of Defense and Department of the Army (AR 200-4) laws and regulations.

Fort Belvoir has been conducting cultural resource investigations since the 1960s. Fort Belvoir's historic resources encompass both pre-installation history (dating back 5,000 years) and U.S. military history from World War I through the Cold War. These resources include buildings, structures, archeological sites and historic landscapes.

A GIS data layer was developed for all known archeological sites on the installation, to facilitate installation wide project planning. The installation's historic buildings are also included in a separate GIS data layer containing the Fort Belvoir Historic District.

Existing planning procedures and policies at Fort Belvoir facilitate coordination within DIS divisions, as well as between DIS & other BASEOPS and tenant organizations. These planning procedures and policies enable cultural resources concerns to be addressed during planning for undertakings on the installation. This includes coordination between NRB staff, such as weekly staff meetings, participation in the Installation Planning Board, coordination with Facilities Area

Coordinating Officers and review of Fort Belvoir permit actions (e.g., Excavation and Demolition Permits). Additional coordination is accomplished through procedural reviews.

The Integrated Facilities System (IFS) is a database system that tracks all alterations and repairs undertaken throughout the installation in the form of a routine service order or an Individual Job Order. All buildings that have been surveyed and found to be “potentially-eligible” or “eligible” for listing in the National Register of Historic Places or “contributing” to the Fort Belvoir Historic District have been keyed as “historic” in the database. This code indicates that anyone initiating work must coordinate the undertaking with the Cultural Resource Manager.

A recommendation of the current Integrated Cultural Resource Management Plan includes preparing a landscape preservation plan for the Fort Belvoir Historic District. This plan will document the historical evolution of the landscape design of the historic district, identify character-defining features associated with the designed and natural landscape and recommend measures to maintain and safeguard historic landscape features. This effort will be coordinated with the natural resource staff responsible for managing developed areas vegetation.

### **15.3 TRAINING SCHEDULE**

The Fort Belvoir training schedule is devised annually by the Department of Plans, Training, Mobilization, and Security (DPTMS). Since training activities generally involve maneuvers on foot or trail, natural resources management activities can often be held simultaneously in a training area. NRB staff contact DPTMS if they need access to a training area to ensure that their activities will not interfere with the military mission.

### **15.4 FORT BELVOIR REAL PROPERTY MAINTENANCE CONTRACT**

The Real Property Maintenance Contract, revised by ENRD staff in 1999, specifies Fort Belvoir standards and best management practices for managing and maintaining improved grounds (trees, turf, landscape beds, and new plantings) and special management areas (grasslands, wildlife/wetland refuges, and corridors) on Fort Belvoir.

During or before the next update of the Real Property Maintenance Contract in 2004, Fort Belvoir NRB staff will ensure that the practices outlined in the contract are consistent with the goals and objectives outlined in this INRMP. Specific areas of focus will be:

- Incorporating the list of recommended native plant species for restoration and landscaping (Appendix M of this plan)
- Updating integrated pest management procedures
- Updating refuge facilities maintenance
- Updating requirements for special management areas based on current surveys and objectives.

## 15.5 INTEGRATED PEST MANAGEMENT PLAN

Fort Belvoir's *Integrated Pest Management Plan* was prepared in accordance with AR 420-76 (under revision to become AR 200-5) and DoD Instruction 4150.7 to facilitate a pattern of coordinated and integrated responses to pest problems encountered at the installation. The plan was updated in 2000 by the Center for Health Promotion and Preventive Medicine and NRB staff (U.S. Army, 2000b). NRB staff was involved in preparing and approving the plan. The plan serves as a tool to reduce reliance on pesticides, to enhance environmental protection, and to maximize the use of integrated pest management techniques. The majority of pesticides, herbicides, and fungicides used at Fort Belvoir are applied at the installation golf courses. Despite a major expansion (from 18 to 36 holes) at the north golf facility and the construction of several new administrative (tenant) facilities over the past 7 years, Fort Belvoir has been able to significantly reduce its usage of pesticides by implementing standard and practices outlined in the Integrated Pest Management Plan. Using a combination of cultural and biological controls as well as new initiatives in the Integrated Pest Management Plan, Fort Belvoir was able to reduce its pesticide usage by 60 percent between 1996 and 1999.

Fort Belvoir NRB staff will continue to provide input during updates of the Integrated Pest Management Plan to ensure that it is consistent with the goals and objectives of this INRMP. Of particular importance is the management objective in the INRMP to reduce pesticide applications by 50% per unit of improved facilities by the year 2001 and by 75% by 2005 using 1994 as the baseline year (Section 10.4), which are goals established by the Chesapeake Bay Program.

## 15.6 POLLUTION PREVENTION PLAN

The *Fort Belvoir Pollution Prevention Plan* (Parsons Engineering Science, 2000) specifies actions that the installation must take to meet federal, state, DoD, and Army (AR 200-1) pollution prevention policy goals. The plan also serves to reduce long-term liabilities associated with waste disposal and to protect public health and the environment by reducing the amount of waste generated and decreasing use of toxic materials, fuels, and chemicals. The plan recommends options for non-toxic chemical substitutions; recycling chemical, organic, and solid wastes (including composting); reducing air emissions; and conserving energy and water. The goals and actions in the pollution prevention plan are consistent with the goals and objectives of this INRMP. The pollution prevention plan is updated on a 2-year cycle.

## 15.7 STORMWATER POLLUTION PREVENTION PLAN

The *Stormwater Pollution Prevention Plan U.S. Army Garrison Fort Belvoir, Virginia* (CDM Federal Program Corporation, 1999) provides the guidance necessary to satisfy the requirements of the installation's general stormwater permit issued by the Virginia Department of Environmental Quality (VDEQ) on May 22, 1998. The plan identifies point sources of pollution throughout the installation that may impact stormwater runoff and practices to prevent or reduce point-source pollutants in stormwater discharges. The plan designates a stormwater pollution prevention team consisting of ECB personnel, and outlines responsibilities for maintaining stormwater management devices; inspecting, testing, and maintaining equipment whose

breakdown could lead to water pollution; training personnel in good housekeeping, spill prevention and response, and material management practices; and performing annual site compliance evaluations. The goals and actions in the stormwater pollution prevention plan are consistent with the goals and objectives of this INRMP.

## **15.8 PHASE II STORMWATER PROGRAM**

The new Phase II Stormwater Regulations require that operators of regulated small municipal separate storm sewer systems (MS4s) and small construction activities (disturbing land between 1 and 5 acres) apply for National Pollutant Discharge Elimination System permit coverage by December 2002 (or December 2004 if a watershed plan is in place) and implement programs and practices to control polluted runoff from non-point sources. MS4s include military bases such as Fort Belvoir. Permit coverage will require that a program to meet the requirements in the permit be developed within 5 years from permit issuance. As discussed in Section 7.1.1, small MS4 stormwater management programs must be comprised of six “minimum control measures” including best management practices (BMPs) to control post-construction runoff. These BMPs include infiltration and vegetative management practices. Fort Belvoir DIS-ENRD staff will develop and implement the required program in accordance with the goals and objectives established in this INRMP. Specifically, the following management recommendations from Section 7.4.2 should be considered for incorporation into the stormwater program developed under the Phase II Stormwater Regulations since they can be used to meet the required six minimum controls:

- Maintain a riparian buffer along all installation waterways and shorelines.
- Correct existing stormwater-related problems as recommended by Langraf (1999) and Allen et al. (1999) and continue long-term stream corridor restoration projects.
- Implement actions to counter existing flow excesses from developed areas as recommended by Allen et al. (1999).
- Develop a program for routine drainageway maintenance, to include maintenance of existing stormwater structures and establish a stormwater management working group.
- Implement stormwater management actions, including BMPs, on all construction projects, as recommended by Allen et al. (1999).
- Incorporate principles of low impact development in facility siting and design on post as recommended within the National Guidance Manual for Low Impact Development.

- Use the installation project/activity review process to incorporate water resources conservation requirements into all phases of facilities siting and construction.

## **15.9 MASTER SPILL PLAN**

Fort Belvoir is finalizing an updated Installation Master Spill Plan, which incorporates an updated Spill Prevention Control and Countermeasures Plan, and an Oil Discharge Contingency Plan. The intent of the Fort Belvoir Master Spill Plan (Dewberry & Davis, 2000 draft) is to provide guidance regarding preventing and responding to a hazardous material/waste or petroleum spill on post. The plan is consistent with the federal, state, and Army (AR 200-1) environmental and health and safety regulations for hazardous material/waste release prevention and response programs. The Master Spill Plan is updated every 3 years.

The Master Spill Plan outlines requirements for spill prevention and response training, containment, inspections, inventory control, leak detection, preventative maintenance, and self-audit programs. In case of a spill, the plan supplies procedures for notification and response. To facilitate predicting spill movement and protecting sensitive resources, the Master Spill Plan includes information on post-wide topography, geology, hydrology (including surface water, groundwater, and wetlands), wildlife significant habitats, adjoining areas, landmarks, historical sites, and water supply and disposal systems (including potable water supply, sanitary sewage, and stormwater drainage). The plan also contains detailed information (e.g., locations of storm drain inlets, nearest surface water, nearest telephone, etc.) for any area where there is potential for a large spill (e.g., aboveground storage tanks, hazardous materials storage areas, etc.).

The installation fire department is the first responder to all spills. It is responsible for stopping leaks, ensuring human safety, and containing spills. ECB staff is responsible for reporting the spill to the necessary state or federal agency (depending on the location of the spill) and performing appropriate clean up and mitigation as required by the agency. Fort Belvoir staff always meets or exceeds mitigation requirements. In cases where spill response staff believe that there may be damage to wildlife or special natural areas, the NRB staff is informed and provides input to clean-up and mitigation. Likewise, if NRB staff notice damage to wildlife, water, or vegetation that may be due to a leak or spill, spill response staff is immediately notified and an investigation ensues.

## **15.10 PETROLEUM STORAGE TANK COMPLIANCE PROGRAM**

Fort Belvoir's petroleum storage tank compliance program is administered in accordance with all applicable federal, state, and Army (AR 200-1) regulations. This program addresses all compliance aspects related to the use and storage of petroleum in both aboveground and underground storage tanks. As new storage tanks are installed, the post specifies the installation of a tank system that would meet the requirements of all applicable regulations regardless of whether or not the system is actually regulated. This typically includes automatic tank gauging/monitoring systems, secondary containment, and spill, overfill, and corrosion protection.

Under its underground storage tank management and removal program, Fort Belvoir has upgraded all regulated tank systems (to meet the requirements of 40 CFR 280) and continues to remove and upgrade tank systems as warranted.

At sites where confirmed petroleum releases have been identified, Fort Belvoir coordinates with the VDEQ to satisfy reporting and further action requirements. Further actions are generally required when there is an unacceptable risk to human health or the environment, when liquid-phase hydrocarbons (typically referred to as “free produce”) exist on groundwater, or when soil is saturated with petroleum. In all cases, Fort Belvoir maintains compliance with the VDEQ requirements.

## **15.11 INTEGRATED SOLID WASTE MANAGEMENT PLAN**

Fort Belvoir’s Integrated Solid Waste Management Plan (ISWMP) was initially prepared in 1995 and last updated in 1999 (Vista Technologies, 1999). The ISWMP provides the framework to facilitate and maintain compliance with applicable federal, state, local, and Army solid waste management regulations. The primary goal of the IWMP is to reduce materials that must be disposed of by incineration or landfilling. In general, the planning goal is to use integrated solid waste management planning to reduce solid waste management costs and potential environmental impacts while improving overall solid waste management. The current plan is projected for a 10-year period from 1999 through 2008. The goals and actions in the ISWMP are consistent with the INRMP. ECB staff will coordinate with NRB staff as needed to satisfy the goals of the ISWMP and this INRMP.

## **15.12 SOLID WASTE LANDFILL POSTCLOSURE PLANS**

Fort Belvoir has no active landfills. However, the installation manages two closed landfills that are regulated by VDEQ (Cullum Woods Municipal Waste Landfill and Theote Debris Landfill) and several small landfills that are regulated under the federal Resource Conservation and Recovery Act (RCRA).

In accordance with Virginia solid waste management regulations, Fort Belvoir prepared postclosure plans for both the Cullum Woods Landfill (SCS Engineers, 1993) and the Theote Debris Landfill (U.S. Army Corps of Engineers, 1993). The postclosure plans outline necessary measures to assess, evaluate, and manage the landfills to reduce potential for harm to human health and the environment. Methane and groundwater monitoring occur regularly at both landfills and groundwater and methane remediation/mitigation efforts are underway at the Cullum Woods Landfill. In addition, semi-annual inspections of each landfill are conducted to evaluate the integrity of the landfill cover and ensure that there are no erosion issues. The INRMP calls for conversion of grasslands from exotic, low value wildlife cover to native, high-value early and transitional successional habitat conditions for several landfill sites. ECB personnel will coordinate with NRB staff to select native seed mixtures and mowing cycles for the landfills that provide food and cover for wildlife.



### **15.13 SOLID WASTE MANAGEMENT UNITS PROGRAM**

Solid waste management units (SWMUs), areas where solid waste is stored, managed, treated, or generated, are defined and regulated under RCRA. There are a total of 238 SWMUs at Fort Belvoir, as identified through a series of studies (U.S. Army, 1982; A.T. Kearney, 1988; and CH2MHill, 1992). Since 1992, Fort Belvoir has evaluated each SWMU and prepared action plans for all of the SWMUs at the Main Post and EPG (Dewberry & Davis, 1999a and 1999b). The action plans guide the investigations and closure procedures for a SWMU. During the management and closure of SWMUs, ECB staff reports any scenarios that have the potential to impact natural resources to the NRB staff for input.

### **15.14 ENVIRONMENTAL TRAINING PROGRAM**

Fort Belvoir ECB and NRB staff determine training requirements and ensure that the necessary training is provided. Environmental training related to natural resources health at Fort Belvoir has included:

- Hazardous waste management training – conducted to meet RCRA requirements and to satisfy the conditions in Fort Belvoir’s Part-B permit
- Hazardous waste facility operators course (and refresher) – required under 40 CFR 264, Protection of Environment
- Hazardous waste generators course (and refresher) – required under 40 CFR 264 and 40 CFR 265
- Oil spill control and recover training – required pursuant to the Clean Water Act, the Oil Pollution Act, and the Master Spill Plan
- Emergency spill response exercise – required in accordance with the Master Spill Plan
- Booming safety training – required in accordance with the Master Spill Plan
- Erosion and sediment control training and stormwater management training – pursuant to the requirements of federal and state guidelines, class content is in accordance with the Virginia Erosion and Sediment Control Field Manual and the Virginia Stormwater Management Handbook
- Degreasing equipment training – conducted as a pollution prevention exercise

The environmental training courses are consistent with the goals and objectives outlined in this INRMP. Additional courses are added when required by law or deemed necessary by NRB and ECB staff.

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